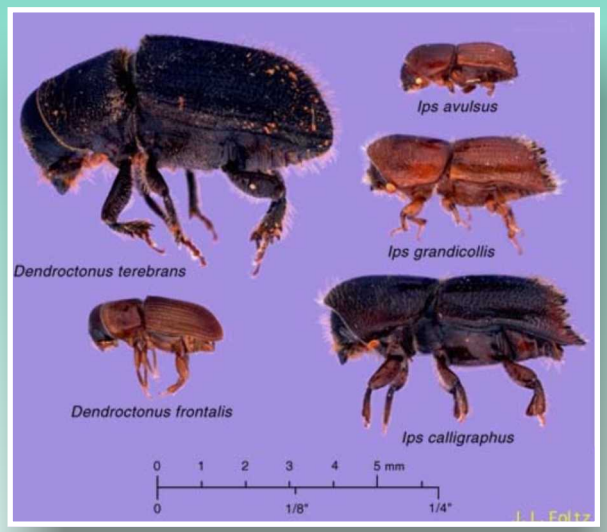
Where to get Assistance?

Contact the North Carolina Forest Service or city arborist in your area for help in identification of Ips beetle infestation and for information on tree removal or treatment.



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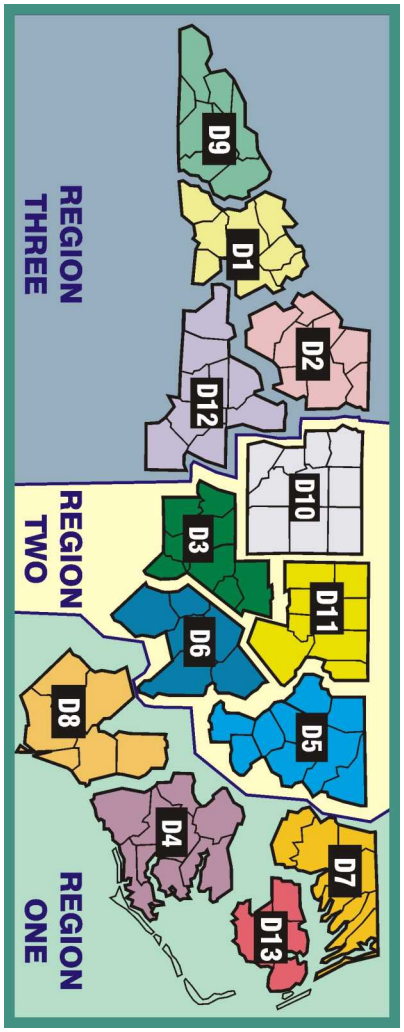

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THE IPS BEETLES

NORTH CAROLINA FOREST SERVICE N C

Size:
1/8 -1/5"
(3 - 5 mm)

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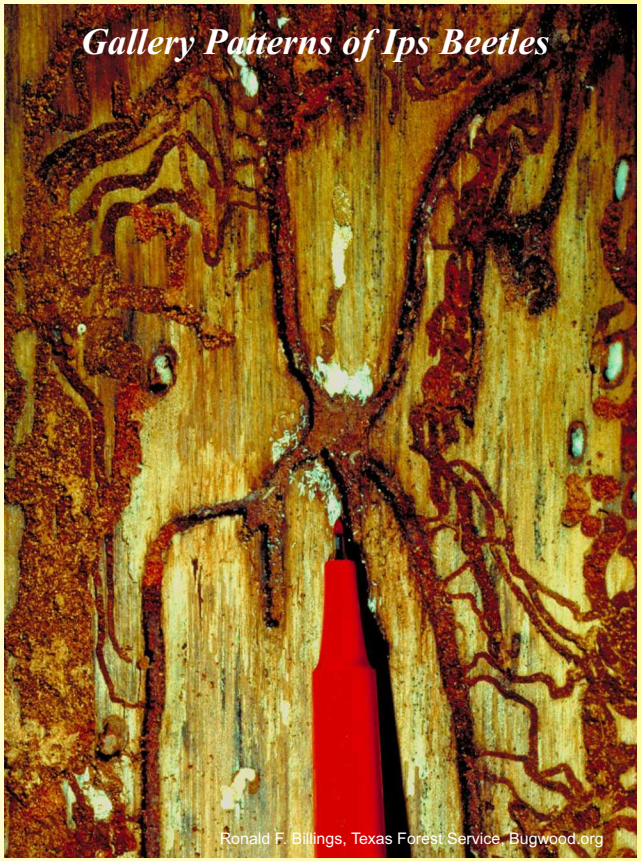
RECOGNITION AND CONTROL

Ips beetles are a group of beetles who live beneath the bark of pine trees. Three species of Ips beetles can be found in all regions of North Carolina, but many more species in the group are scattered throughout the world. They almost always are found in newly dead pine material such as logging debris and lightning-killed trees. When trees are under severe stress -- during drought or when they have been damaged by lightning or forest fires -- the beetle also may attack living, green pine trees. Drought, however, seems to be the predominant stress factor encouraging green tree attack in North Carolina.

DESCRIPTION OF DAMAGE

The first noticeable sign of attack is usually a yellowish discoloration on the tops of infested pine trees. This discoloration quickly changes to a reddish color before the tree finally sheds all of its foliage. Careful examination of a tree under attack by Ips will reveal reddish boring dust around the base of the tree and in crevices in the bark. If the tree is particularly healthy, small gobs of reddish-brown (occasionally white) pitch will be seen along the trunk.

If the bark is peeled away from a newly killed tree, a "Y", "U" or "H" shaped gallery pattern will be seen on both the bark and engraved on the wood just inside the of the bark. The habit of engraving the wood has given this insect the common name of Ips engraver beetle. When observing Ips gallery patterns, you should look at the large adult galleries and not the smaller larval mines which tend to undulate out from the adult galleries.



All Ips adults are reddish-brown to black and have shovel-shaped rear ends. The smallest Ips beetle found in North Carolina is known as Ips avulsus. It averages only about 1/8 inch in length at adult size. When green pine trees are attacked, it tends to attack the tops and branches and occasionally infests small trees. It is not uncommon for this insect to attack one branch at a time in larger trees. Ips grandicollis is somewhat larger, with adults averaging 3/16ths of an inch. This species tends to attack the mid and upper portions of green trees, while Ips calligraphus, the largest of the North Carolina species at 1/4 of an inch, attacks the lower portions of trees. While single species sometimes are found in a tree, it is not uncommon to find several or all species working together. They also sometimes join forces with turpentine or southern pine beetles during an attack on a green tree.

All of the Ips beetles are strong fliers and adults can fly at least several miles to find a suitable host to begin an attack. The male beetle attacks first, boring a hole through the bark of the tree to construct a mating chamber beneath the bark. He then emits a chemical called a pheromone which attracts two to four females to the tree. Each of the female beetles will build an egg gallery. Eggs are deposited in niches along the sides of the galleries and the whitish "C" shaped larvae, which emerge from the eggs, tunnel in the inner bark where they eventually pupate. The pupae turn into adults, who feed for a short time before emerging to begin new infestations. The entire life cycle requires three to four weeks.

PREVENTION AND CONTROL

If an Ips outbreak is caused by drought, it will likely collapses after a period of normal rainfall. Valuable shade trees may be watered during drought periods to minimize Ips problems, but this is generally impractical in forest situations.

In cases where Ips infestations are scattered or concentrated in small groups of trees, control is usually not recommended because of cost. If enough volume is available, infested trees should be salvaged for wood products to prevent further spread and to efficiently utilize the resource. When an infestation is extremely active and salvage is not possible, affected trees should be cut and treated with a registered insecticide. For insecticide information, contact your local county agriculture extension agent or forest ranger. Burning, chipping or debarking infected portions of trees can also be used for control.

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